

AMENDMENTS TO THE CLAIMS

Please amend the claims as set forth below in marked-up form. This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A self-expanding hearing device comprising:
a body[[.]];
a membrane coupled to said body; and,
a frame coupled to said body, said frame being adapted to deploy from a compressed state to a deployed state when warmed above a material activation temperature of the frame ~~constructed so that a user can compress said frame for insertion into the user's ear canal and when the user releases compression the frame expands.~~
2. (Original) A self-expanding hearing device according to Claim 1 wherein said body includes a microphone and a speaker.
3. (Original) A self-expanding hearing device according to Claim 2 wherein said body is flexible.
4. (Original) A self-expanding hearing device according to Claim 3 wherein said body comprises a flexible spring.

5. (Original) A self-expanding hearing device according to Claim 3 wherein said body comprises a flexible Nitinol tube.
6. (Withdrawn) A self-expanding hearing device according to Claim 5 wherein said flexible body is a flexible Nitinol tube with slits.
7. (Original) A self-expanding hearing device according to Claim 2 wherein said body is formable by a user.
8. (Original) A self-expanding hearing device according to Claim 2 wherein said body is shaped to conform the ear canal.
9. (Withdrawn) A self-expanding hearing device according to Claim 1 wherein said body is asymmetrically located with respect to said frame.
10. (Original) A self-expanding hearing device according to Claim 1 wherein said frame includes a plurality of supports.
11. (Original) A self-expanding hearing device according to Claim 10 wherein said supports are elastic.

12. (Original) A self-expanding hearing device according to Claim 10 wherein said supports are formed of a superelastic material.

13. (Original) A self-expanding hearing device according to Claim 12 wherein said superelastic material is Nitinol.

14. (Original) A self-expanding hearing device according to Claim 10 wherein said supports are constructed and arranged to move independently of each other.

15. (Original) A self-expanding hearing device according to Claim 10 wherein said supports are springs.

16. (Original) A self-expanding hearing device according to Claim 15 wherein said springs are constructed of metal.

17. (Original) A self-expanding hearing device according to Claim 16 wherein said springs are constructed of Nitinol.

18. (Original) A self-expanding hearing device according to Claim 16 wherein said springs are constructed of Elgiloy.

19. (Original) A self-expanding hearing device according to Claim 16 wherein said springs are constructed of spring steel.
20. (Original) A self-expanding hearing device according to Claim 16 wherein said springs are constructed of MP35 alloy.
21. (Withdrawn) A self-expanding hearing device according to Claim 10 wherein said supports are shaped in a spiral configuration.
22. (Withdrawn) A self-expanding hearing device according to Claim 10 wherein said supports are shaped in a mesh configuration.
23. (Original) A self-expanding hearing device according to Claim 10 wherein said supports are 0.002 to 0.02 inches wide.
24. (Original) A self-expanding hearing device according to Claim 23 wherein said supports are 0.004 to 0.015 inches wide.
25. (Original) A self-expanding hearing device according to Claim 24 wherein said supports are 0.005 to 0.01 inches wide.

26. (Original) A self-expanding hearing device according to Claim 10 wherein said supports are formed of a shape memory material.
27. (Original) A self-expanding hearing device according to Claim 26 wherein said shape memory material is Nitinol.
28. (Original) A self-expanding hearing device according to Claim 27 wherein said shape memory material is Nitinol with material activation temperature between 20°C and 40°C.
29. (Cancelled)
30. (Original) A self-expanding hearing device according to Claim 29 wherein the material activation temperature is about 20°C.
31. (Original) A self-expanding hearing device according to Claim 29 wherein the material activation temperature is above 25°C and below 37°C.
32. (Original) A self-expanding hearing device according to Claim 1 wherein said membrane encloses said frame.
33. (Withdrawn) A self-expanding hearing device according to Claim 1 wherein said membrane partially encloses said frame.

34. (Withdrawn) A self-expanding hearing device according to Claim 1 further comprising a sealing fin connected to said membrane.

35. (Original) A self-expanding hearing device according to Claim 1 wherein said membrane is constructed from elastic material.

36. (Original) A self-expanding hearing device according to Claim 1 wherein said membrane is constructed from inelastic material.

37. (Original) A self-expanding hearing device according to Claim 1 wherein said membrane is 0.00025 to 0.2 inches thick.

38. (Original) A self-expanding hearing device according to Claim 37 wherein said membrane is 0.0005 to 0.05 inches thick.

39. (Original) A self-expanding hearing device according to Claim 38 wherein said membrane is 0.001 to 0.025 inches thick.

40. (Original) A self-expanding hearing device according to Claim 1 wherein said membrane comprises at least two zones, and said membrane has a first thickness in the first zone and a second thickness in the second zone.

41. (Original) A self-expanding hearing device according to Claim 40 wherein the first thickness is smaller than the second thickness.
42. (Original) A self-expanding hearing device according to Claim 40 wherein the first thickness is between 0.00025 and 0.02 inches.
43. (Original) A self-expanding hearing device according to Claim 40 wherein the second thickness is between 0.02 and 0.2 inches.
44. (Original) A self-expanding hearing device according to Claim 1 wherein said membrane is coupled to said frame.
45. (Original) A self-expanding hearing device according to Claim 1 wherein said membrane is not coupled to said frame.
46. (Original) A self-expanding hearing device according to Claim 10 wherein said body has a proximal end and a distal end and said supports are connected to said body by a proximal connector and a distal connector.

47. (Original) A self-expanding hearing device according to Claim 46 wherein said proximal connector is constructed and arranged to move relative to said body when the user compresses said frame.

48. (Original) A self-expanding hearing device according to Claim 46 wherein said distal connector is constructed and arranged to move relative to said body when the user compresses said frame.

49. (Original) A self-expanding hearing device according to Claim 1 wherein said frame is comprised of plurality of sections.

50. (Original) A self-expanding hearing device according to Claim 49 wherein said frame is comprised of a proximal section, a distal section and a middle section.

51. (Original) A self-expanding hearing device according to Claim 50 wherein at least two of said sections are substantially different in configuration from each other.

52. (Currently Amended) A self-expanding hearing device comprising:

a body[,,];

a frame coupled to said body, said frame being adapted to deploy from a compressed state to a deployed state when warmed above a material activation temperature of said frame constructed so that a user can compress said frame for insertion into the user's ear canal and when the user releases the compression the frame expands;
and,

a membrane coupled to said body, wherein said membrane is constructed to enclose said frame and to control the rate of expansion of said frame.

53. (Withdrawn) A self-expanding hearing device according to Claim 52 wherein said membrane is comprised of a material which is permeable to air and the rate of permeability is selectable.

54. (Withdrawn) A self-expanding hearing device according to Claim 52 wherein membrane is comprised of a material which is not permeable to air, and the device further comprises air inlet means to allow air to enter said membrane at a controllable rate.

55. (Currently Amended) A self-expanding hearing device comprising:

a body; and,

a frame coupled to said body, said frame being adapted to deploy from a compressed state to a deployed state when warmed above a material activation temperature of said

~~frame constructed so that a user can compress said frame for insertion into the user's ear canal and when the user releases the compression the frame expands.~~

56. (Original) A self-expanding hearing device according to Claim 55 wherein said body includes a microphone and a speaker.

57. (Original) A self-expanding hearing device according to Claim 55 wherein said body is flexible.

58. (Original) A self-expanding hearing device according to Claim 55 wherein said frame includes a plurality of supports.

59. (Original) A self-expanding hearing device according to Claim 58 wherein said supports are elastic.

60. (Original) A self-expanding hearing device according to Claim 58 wherein said supports are formed of a superelastic material.

61. (Original) A self-expanding hearing device according to Claim 60 wherein said superelastic material is Nitinol.

62. (Original) A self-expanding hearing device according to Claim 58 wherein said supports are constructed and arranged to move independently of each other.

63. (Withdrawn) A self-expanding hearing device according to Claim 58 wherein said supports are shaped in a spiral configuration.

64. (Original) A self-expanding hearing device according to Claim 58 wherein said body has a proximal end and a distal end and said supports are connected to said body by a proximal connector and a distal connector.

65. (Original) A self-expanding hearing device according to Claim 64 wherein said proximal connector is constructed and arranged to move relative to said body when the user compresses said frame.

66. (Original) A self-expanding hearing device according to Claim 64 wherein said distal connector is constructed and arranged to move relative to said body when the user compresses said frame.

67. (Cancelled)

68. (Cancelled)

69. (Cancelled)

70. (Cancelled)

71. (New) A self-expanding hearing device comprising:

a hearing aid body comprising:

a microphone;

a speaker;

a frame coupled to the body, the frame being adapted to deploy from a compressed state to a deployed state when warmed above a material activation temperature of the frame.

72. (New) A self-expanding hearing device according to claim 71, further comprising a surface adapted to contact an ear canal wall, the surface being coupled to the frame.

73. (New) A self-expanding hearing device according to claim 72, wherein the surface comprises a silicone-based material and the frame comprises a shape memory material.

74. (New) A self-expanding hearing device comprising:

a hearing aid body comprising:

a microphone;

a speaker;

a Nitinol frame coupled to the body, the Nitinol frame being adapted to deploy from a compressed state to a deployed state when warmed by an ear canal;
a silicone surface adapted to contact a wall of the ear canal, the silicone surface being coupled to the Nitinol frame.

75. (New) A self-expanding hearing device comprising:

a hearing aid body comprising:

a microphone;

a speaker;

a Nitinol frame coupled to the body, the Nitinol frame being adapted to deploy from a compressed state to a deployed state when warmed by an ear canal, the Nitinol frame comprising a material activation temperature between 20°C and 40°C;
a silicone surface adapted to contact a wall of the ear canal, the silicone surface being coupled to the Nitinol frame.